

## ABSTRACT

A plurality of heavy mass irregularities attached to an inner wall of the drill collar attenuate waves traveling through the collar. The plurality of heavy mass irregularities are spaced and sized for the maximum attenuation of acoustic pulses in a predetermined frequency range. The mass irregularities may be rings firmly coupled to the outer surface of the collar. Alternatively, the mass irregularities may be rings firmly coupled to the outer collar surface by neck pieces, extending inwardly from the inner circumference of the ring. The mass irregularities may be made of steel or tungsten. In another preferred embodiment, the mass irregularities are asymmetrically coupled to an outer collar wall for providing preferential directional attenuation.